

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0303131F: Minimum Essential Emergency Communications Network (MEECN)							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	81.095	72.360	78.784	0.000	78.784	10.855	1.339	1.358	1.379	Continuing	Continuing
672832: MEECN System Improvements	2.067	1.806	1.299	0.000	1.299	1.316	1.339	1.358	1.379	Continuing	Continuing
674610: Minuteman MEECN Program Upgrade (MMPU)	27.795	14.412	32.029	0.000	32.029	0.000	0.000	0.000	0.000	0.000	0.000
675047: Ground Element MEECN System (GEMS)	51.233	56.142	45.456	0.000	45.456	9.539	0.000	0.000	0.000	0.000	0.000
A. Mission Description and Budget Item Justification											
<p>Minimum Essential Emergency Communications Network (MEECN) systems provide assured communications connectivity between the President and the strategic deterrent forces in stressed environments. There are three on-going MEECN activities working to modernize strategic forces' communication networks.</p> <ul style="list-style-type: none">- MEECN Systems Improvements (MSI) is a long-range planning process with Users (Air Force Global Strike Command (AFGSC), Air Combat Command (ACC), Air Force Space Command (AFSPC), US Strategic Command (USSTRATCOM), Air Mobility Command (AMC), and the Navy) to develop positions for current and future requirements/issues based on available technology.- Minuteman MEECN Program Upgrade (MMPU) updates existing systems composed of Minuteman ICBM Launch Control Center (LCC) Very Low Frequency/Low Frequency (VLF/LF) along with a Minuteman ICBM LCC Extremely High Frequency (EHF) communications capability. MMPU will provide a capability in the LCC for the Missile Combat Crew Members to have operator control of the terminal to switch among various EHF/AEHF satellite constellations and be compatible with Advanced EHF (AEHF). AEHF is an Extended Data Rate (XDR) waveform that provides more secure transmit/receive at frequencies above 20 GHz.- Ground Element MEECN Systems (GEMS) provides a secure, survivable inter-site and intra-site and mobile VLF and EHF communication to bomber, tanker, reconnaissance units and other communications facilities with strategic responsibilities. GEMS will also be upgraded to AEHF with the XDR waveform.- Long Term Solution (LTS) will replace the current Nuclear Command and Control (NC2) Hybrid Solution down to Launch Control Centers and provide a worldwide, robust, non-survivable NC2 network for specialized messaging services to meet Nuclear Technical Performance Criteria (NTPC) requirements for Emergency Action Message (EAM) dissemination.											
<p>This program is Budget Activity 07, Operational System Development, because it supports work on currently fielded weapon systems.</p>											

UNCLASSIFIED

R-1 Line Item #175

Page 1 of 23

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force				DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
3600: Research, Development, Test & Evaluation, Air Force		PE 0303131F: Minimum Essential Emergency Communications Network (MEECN)			
BA 7: Operational Systems Development					
B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	70.562	72.694	0.000	0.000	0.000
Current President's Budget	81.095	72.360	78.784	0.000	78.784
Total Adjustments	10.533	-0.334	78.784	0.000	78.784
• Congressional General Reductions		-0.334			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	10.533	0.000	78.784	0.000	78.784
Change Summary Explanation					
The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.					

UNCLASSIFIED

R-1 Line Item #175

Page 2 of 23

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>				PROJECT 672832: <i>MEECN System Improvements</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
672832: <i>MEECN System Improvements</i>	2.067	1.806	1.299	0.000	1.299	1.316	1.339	1.358	1.379	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification - MEECN Systems Improvements (MSI) is a long-range planning process with Users (Air Combat Command (ACC), Air Force Space Command (AFSPC), Air Force Global Strike Command (AFGSC), US Strategic Command (USSTRATCOM), Air Mobility Command (AMC), and the Navy) to develop positions for current and future requirements/issues based on available technology. - Trade-off analysis is performed to identify benefits and drawbacks of maintaining current systems. Studies are conducted to monitor communications system technology and potential integration complexities into current and future capabilities. - MSI provides pro-active support to the Nuclear and National C2 community: -- Develops an Air Force National Command and Control (NC2) Roadmap for FYDP budget inputs. -- Partner with Navy on Common VLF Receiver requirements and architectural design. - This program is in Budget Activity 07, Operational System Development, because it supports work on currently fielded weapon systems.											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Major Thrust: Nuclear Command & Control Performance Study (NC2 Roadmap) & simulator for testing of communication architectures						2.067	1.806	1.299	0.000	1.299	
<i>FY 2009 Accomplishments:</i> In FY2009: VLF/LF Modernization Studies; Nuclear Command & Control Performance Study (NC2 Roadmap) & simulator for testing of communication architectures; and analytical support											

UNCLASSIFIED

R-1 Line Item #175

Page 3 of 23

UNCLASSIFIED

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B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
<i>FY 2010 Plans:</i> In FY2010: VLF/LF Modernization Studies; Nuclear Command & Control Performance Study (NC2 Roadmap) & simulator for testing of communication architectures; and analytical support <i>FY 2011 Base Plans:</i> In FY2011: VLF/LF Modernization Studies; Nuclear Command & Control Performance Study (NC2 Roadmap) & simulator for testing of communication architectures; and analytical support <i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.											
Accomplishments/Planned Programs Subtotals						2.067	1.806	1.299	0.000	1.299	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (8172): <i>Activity Not Provided</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D. Acquisition Strategy											
- Johns Hopkins University (JHU) Applied Physics Lab (APL) is on contract to provide updates to the NC2 Roadmap in terms of the New Triad.											
E. Performance Metrics											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force											DATE: February 2010																																																																																																											
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<p>Product Development (\$ in Millions)</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Cost Category Item</th> <th rowspan="2">Contract Method & Type</th> <th rowspan="2">Performing Activity & Location</th> <th rowspan="2">Total Prior Years Cost</th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th rowspan="2">Cost To Complete</th> <th rowspan="2">Total Cost</th> <th rowspan="2">Target Value of Contract</th> </tr> <tr> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> </tr> </thead> <tbody> <tr> <td>CEP Analysis</td> <td>MIPR</td> <td>JHU APL Laurel, MD</td> <td align="right">0.805</td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td align="right">0.000</td> <td align="right">0.805</td> <td align="right">0.805</td> </tr> <tr> <td>NC2 Roadmap</td> <td>MIPR</td> <td>JHU APL Laurel, MD</td> <td align="right">3.678</td> <td align="right">0.358</td> <td>Dec 2009</td> <td align="right">0.300</td> <td>Dec 2010</td> <td align="right">0.000</td> <td></td> <td align="right">0.300</td> <td>Continuing</td> <td>Continuing</td> <td>Continuing</td> </tr> <tr> <td>Simulation/Modeling Equipment</td> <td>MIPR</td> <td>Lincoln Labs Bedford, MA</td> <td align="right">2.224</td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td align="right">0.000</td> <td align="right">2.224</td> <td align="right">2.224</td> </tr> <tr> <td>Vol VII EAM Format Updates</td> <td>TBD/TBD</td> <td>GDCS Needham, MA</td> <td align="right">0.500</td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td align="right">0.000</td> <td align="right">0.500</td> <td>Continuing</td> </tr> <tr> <td>VLF/LF Modernization Studies</td> <td>MIPR</td> <td>SPAWAR San Diego, CA</td> <td align="right">0.500</td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.000</td> <td align="right">0.000</td> <td align="right">0.500</td> <td>Continuing</td> </tr> <tr> <td align="right" colspan="3">Subtotal</td><td align="right">7.707</td><td align="right">0.358</td><td></td><td align="right">0.300</td><td></td><td align="right">0.000</td><td></td><td align="right">0.300</td><td></td><td></td><td></td> </tr> </tbody> </table>														Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	CEP Analysis	MIPR	JHU APL Laurel, MD	0.805	0.000		0.000		0.000		0.000	0.000	0.805	0.805	NC2 Roadmap	MIPR	JHU APL Laurel, MD	3.678	0.358	Dec 2009	0.300	Dec 2010	0.000		0.300	Continuing	Continuing	Continuing	Simulation/Modeling Equipment	MIPR	Lincoln Labs Bedford, MA	2.224	0.000		0.000		0.000		0.000	0.000	2.224	2.224	Vol VII EAM Format Updates	TBD/TBD	GDCS Needham, MA	0.500	0.000		0.000		0.000		0.000	0.000	0.500	Continuing	VLF/LF Modernization Studies	MIPR	SPAWAR San Diego, CA	0.500	0.000		0.000		0.000		0.000	0.000	0.500	Continuing	Subtotal			7.707	0.358		0.300		0.000		0.300			
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UNCLASSIFIED

R-1 Line Item #175

Page 5 of 23

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>				PROJECT 672832: <i>MEECN System Improvements</i>					
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			8.878	1.448		0.999		0.000		0.999			
Remarks													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			16.585	1.806		1.299		0.000		1.299			
Remarks Total Prior Years Cost may include only FY 2009 data.													

UNCLASSIFIED

R-1 Line Item #175

Page 6 of 23

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

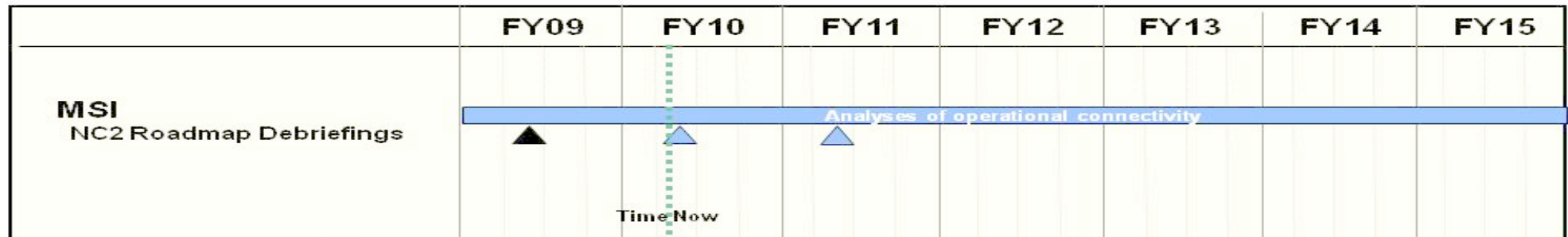
R-1 ITEM NOMENCLATURE

PE 0303131F: Minimum Essential Emergency
Communications Network (MEECN)

PROJECT

672832: MEECN System Improvements

MSI



CDR: Critical Design Review

IOC: Initial Operational Capability

EHF: Extremely High Frequency

PDR: Preliminary Design Review

FOC: Full Operational Capability

VLF: Very Low Frequency

Concept activities
Production / fielding

Design / development
Operations / sustainment

Integration / test
Key events

UNCLASSIFIED

R-1 Line Item #175

Page 7 of 23

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0303131F: Minimum Essential Emergency Communications Network (MEECN)		PROJECT 672832: MEECN System Improvements	
Schedule Details					
		Start		End	
Event		Quarter	Year	Quarter	Year
NC2 Roadmap Debriefs		2	2009	2	2011

UNCLASSIFIED

R-1 Line Item #175

Page 8 of 23

UNCLASSIFIED

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
674610: <i>Minuteman MEECN Program Upgrade (MMPU)</i>	27.795	14.412	32.029	0.000	32.029	0.000	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification <p>This project upgrades existing Minuteman ICBM Launch Control Center (LCC) Extremely High Frequency (EHF) communications to provide a capability for Missile Combat Crew Members to have operator control in the Launch Control Center of the terminal to switch among various EHF/AEHF satellite constellations. This upgrade will be compatible with Advanced EHF (AEHF) satellite and the supporting key management infrastructure (crypto interoperability).</p> <p>AEHF is an Extended Data Rate (XDR) waveform that provides more secure transmit/receive at frequencies above 20 GHz. The AEHF terminal will provide both receive and report-back capability.</p> <p>The terminal operator control modification will allow missile combat crews to transition between MILSTAR, UFO/E, UFO/EE and AEHF satellite constellations without dispatch of a maintenance team. These modifications comply with USSTRATCOM requirement for MMP terminals to communicate at higher data rates. This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.</p>											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Major Thrust: MMP Upgrade Technology Development						27.795	14.412	32.029	0.000	32.029	
<i>FY 2009 Accomplishments:</i> In FY2009: Engineering and Manufacturing Development (EMD) to include: AEHF terminal integration, AEHF modem design, cryptographic upgrade, weapon system hardness analysis, hardware development and software development for AEHF and improved operator control, analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA). Includes analytical support.											

UNCLASSIFIED

R-1 Line Item #175

Page 9 of 23

UNCLASSIFIED

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B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
<p><i>FY 2010 Plans:</i> In FY2010: Complete Engineering and Manufacturing Development (EMD) and initiate Integration and Test (I&T) Phase to include: AEHF terminal integration, AEHF modem design, cryptographic upgrade, weapon system hardness analysis, hardware development and software development for AEHF and improved operator control, analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA). Includes analytical support.</p> <p><i>FY 2011 Base Plans:</i> In FY2011: Complete Integration and Test (I&T) Phase to include: AEHF terminal integration, AEHF modem design, cryptographic upgrade, weapon system hardness analysis, hardware development and software development for AEHF and improved operator control, analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA). Includes analytical support. This effort leads to a MS-C.</p> <p><i>FY 2011 OCO Plans:</i> In FY 2011 OCO: Not Applicable.</p>											
Accomplishments/Planned Programs Subtotals						27.795	14.412	32.029	0.000	32.029	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (8399): <i>PE0303131F, MEECN, MPAF</i>	0.000	0.000	0.000	0.000	0.000	24.062	10.105	0.000	0.000	0.000	0.000
D. Acquisition Strategy											
The ICBM Prime Integrating Contract (through OO-ALC, Hill AFB, UT) was used as a contracting vehicle for the Minuteman MEECN Program (MMP) and will continue to be used to provide an advisory role for integration support for the MMP Upgrade program.											

UNCLASSIFIED

R-1 Line Item #175

Page 10 of 23

UNCLASSIFIED

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Two Concept and Technology Demonstration (C&TD) contracts were awarded to separate vendors following full and open competition. The MMP Upgrade System Development Demonstration (SDD) effort was a full and open competition and was awarded to Raytheon Company, Marlborough, MA on 15 Jan 08.		
E. Performance Metrics Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.		

UNCLASSIFIED

R-1 Line Item #175

Page 11 of 23

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force											DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>				PROJECT 674610: <i>Minuteman MEECN Program Upgrade (MMPU)</i>						
Product Development (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
MMP Development	SS/CPAF	Northrup Grumman TBD	46.069	0.000		0.000		0.000		0.000	0.000	46.069	46.069	
MMP Upgrade Technology Development	SS/FFP	Rockwell Collins & Raytheon TBD	16.566	0.000		0.000		0.000		0.000	0.000	16.566	16.566	
MMP Upgrade Program Integrator (Advisor)	SS/FFP	Northrup Grumman TBD	4.939	1.580	Dec 2009	3.510	Dec 2010	0.000		3.510	0.000	10.029	4.957	
MMP Upgrade System Development and Demonstration (SDD)	SS/CPAF	Raytheon Company TBD	43.084	8.534	Dec 2009	24.308	Dec 2010	0.000		24.308	Continuing	Continuing	Continuing	
Subtotal			110.658	10.114		27.818		0.000		27.818				
Remarks														
Support (\$ in Millions)														
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Engineering and Acquisition Support	TBD/TBD	Various Various	8.023	2.084	Dec 2009	2.050	Dec 2010	0.000		2.050	Continuing	Continuing	Continuing	
MITRE	TBD/TBD	TBD	5.593	1.946	Oct 2009	1.891	Oct 2010	0.000		1.891	0.000	9.430	5.125	

UNCLASSIFIED

R-1 Line Item #175

Page 12 of 23

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>				PROJECT 674610: <i>Minuteman MEECN Program Upgrade (MMPU)</i>					
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		TBD											
PMA	TBD/TBD	TBD TBD	0.508	0.205	Dec 2009	0.200	Dec 2010	0.000		0.200	0.000	0.913	0.625
Subtotal			14.124	4.235		4.141		0.000		4.141			
Remarks													
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Various	Various/ Various	Various Various	0.276	0.063	Mar 2010	0.070	Mar 2011	0.000		0.070	0.000	0.409	3.430
Subtotal			0.276	0.063		0.070		0.000		0.070	0.000	0.409	3.430
Remarks													
			Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			125.058	14.412		32.029		0.000		32.029			

UNCLASSIFIED

R-1 Line Item #175

Page 13 of 23

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force							DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>			R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>		PROJECT 674610: <i>Minuteman MEECN Program Upgrade (MMPU)</i>			
	Total Prior Years Cost	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Remarks Total Prior Years Cost may include only FY 2009 data.								

UNCLASSIFIED

R-1 Line Item #175

Page 14 of 23

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

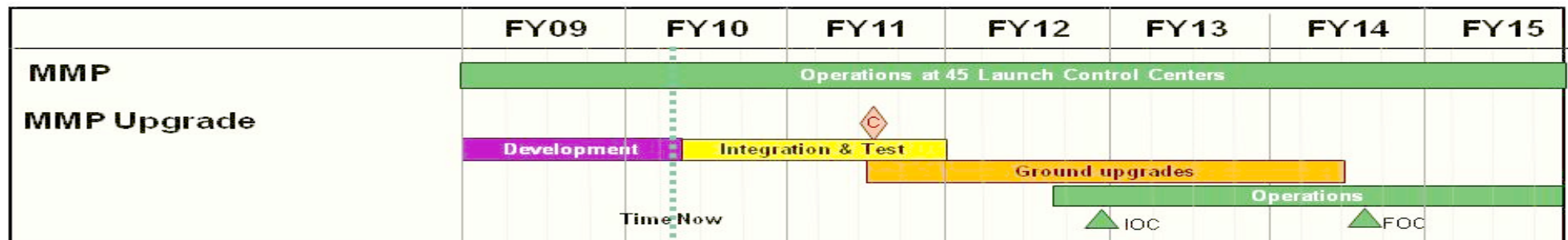
R-1 ITEM NOMENCLATURE

PE 0303131F: Minimum Essential Emergency
Communications Network (MEECN)

PROJECT

674610: Minuteman MEECN Program Upgrade
(MMPU)

MMP Upgrade



CDR: Critical Design Review
IOC: Initial Operational Capability

EHF: Extremely High Frequency
PDR: Preliminary Design Review

FOC: Full Operational Capability
VLF: Very Low Frequency

Concept activities
Production / fielding

Design / development
Operations / sustainment

Integration / test
Key events

UNCLASSIFIED

R-1 Line Item #175

Page 15 of 23

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>	PROJECT 674610: <i>Minuteman MEECN Program Upgrade (MMPU)</i>	

Schedule Details

Event	Start		End	
	Quarter	Year	Quarter	Year
Continue SDD	1	2009	2	2010
Integration and Test	2	2010	4	2011

UNCLASSIFIED

R-1 Line Item #175

Page 16 of 23

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>				PROJECT 675047: <i>Ground Element MEECN System (GEMS)</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
675047: <i>Ground Element MEECN System (GEMS)</i>	51.233	56.142	45.456	0.000	45.456	9.539	0.000	0.000	0.000	0.000	0.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification <p>Ground Element MEECN Systems (GEMS) will be comprised of EHF/AEHF, VLF/LF, HF, UHF and Aircrew Alerting components and will provide secure, survivable inter-site, intra-site and mobile communications to bomber, tanker, reconnaissance and other communications facilities with strategic responsibilities. GEMS terminals will be developed and fielded to replace strategic mobile and fixed-site Single Channel Anti-jam Man-Portable (SCAMP) terminals. GEMS will also replace the Aircraft Alerting Communications Electromagnetic Pulse System/Electromagnetic Pulse Hardened Dispersal Communications (AACE/EHDC) systems.</p> <p>- GEMS' primary mission is to provide strategic Wing Command Posts and mobile support teams survivable communication paths to receive EAMs and Force Management messages from Nuclear Command and Control (NC2) nodes and disseminate them to bomber, tanker, and recce aircrews.</p> <p>- GEMS will provide solutions to existing capability shortfalls for NC2 and has significant potential to provide distributed and transportable command and control capabilities beyond the traditional NC2 mission - GEMS is the last line of operational comm when all other peacetime links fail.</p> <p>This program is in Budget Activity 07, Operational System Development, because it supports work on fielded operating weapon systems.</p>											
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
Major Thrust: System Development and Demonstration (SDD) effort						51.233	56.142	45.456	0.000	45.456	
<i>FY 2009 Accomplishments:</i> In FY2009: Engineering and Manufacturing Development (EMD) contract to include: EHF, VLF, HF and UHF terminal integration; EHF, VLF, HF and UHF modem design; cryptographic upgrade; weapon system hardness analysis; EHF, VLF, HF and UHF hardware development; EHF, VLF, HF and UHF											

UNCLASSIFIED

R-1 Line Item #175

Page 17 of 23

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0303131F: Minimum Essential Emergency Communications Network (MEECN)		PROJECT 675047: Ground Element MEECN System (GEMS)		
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
software development; analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA); and pager/klaxon system development.						
FY 2010 Plans: In FY2010: Engineering and Manufacturing Development (EMD) contract to include: EHF, VLF, HF and UHF terminal integration; EHF, VLF, HF and UHF modem design; cryptographic upgrade; weapon system hardness analysis; EHF, VLF, HF and UHF hardware development; EHF, VLF, HF and UHF software development; analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA); and pager/klaxon system development. Accomplish delta PDR and delta CDR.						
FY 2011 Base Plans: In FY2011: Integration and Test (I&T) contract to include: EHF, VLF, HF and UHF terminal integration; EHF, VLF, HF and UHF modem design; cryptographic upgrade; weapon system hardness analysis; EHF, VLF, HF and UHF hardware development; EHF, VLF, HF and UHF software development; analysis of power and cooling requirements, antenna integration, analysis of Software Compliant Architecture (SCA); and pager/klaxon system development.						
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
Accomplishments/Planned Programs Subtotals		51.233	56.142	45.456	0.000	45.456

UNCLASSIFIED

R-1 Line Item #175

Page 18 of 23

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0303131F: Minimum Essential Emergency Communications Network (MEECN)				PROJECT 675047: Ground Element MEECN System (GEMS)			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (8662): PE0303131F, MEECN, OPAF	0.000	0.000	0.000	0.000	0.000	57.621	41.088	39.622	33.956	0.000	0.000
D. Acquisition Strategy											
Two Concept and Technology Demonstration (C&TD) contracts were awarded to separate vendors following full and open competition. Rockwell Collins of Cedar Rapids, IA was awarded the SDD (CPAF) and production contract on 23 June 2005.											
E. Performance Metrics											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force											DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>				PROJECT 675047: <i>Ground Element MEECN System (GEMS)</i>					
Product Development (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SDD Contract	SS/CPAF	Rockwell Collins IA	184.983	48.833	Dec 2009	38.980	Dec 2010	0.000		38.980	Continuing	Continuing	Continuing
Subtotal			184.983	48.833		38.980		0.000		38.980			
Remarks													
Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Acquisition Support	Various/ Various	Various Various	12.236	3.032	Dec 2009	3.100	Dec 2010	0.000		3.100	Continuing	Continuing	Continuing
MITRE	WR	TBD Bedford, MA	8.411	2.760	Oct 2009	2.200	Oct 2010	0.000		2.200	Continuing	Continuing	Continuing
PMA	TBD/TBD	TBD TBD	1.950	0.973	Dec 2009	0.550	Dec 2010	0.000		0.550	Continuing	Continuing	Continuing
Subtotal			22.597	6.765		5.850		0.000		5.850			
Remarks													

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force											DATE: February 2010																																																										
APPROPRIATION/BUDGET ACTIVITY 3600: <i>Research, Development, Test & Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0303131F: <i>Minimum Essential Emergency Communications Network (MEECN)</i>				PROJECT 675047: <i>Ground Element MEECN System (GEMS)</i>																																																													
Test and Evaluation (\$ in Millions) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th colspan="4"></th> <th colspan="2">FY 2010</th> <th colspan="2">FY 2011 Base</th> <th colspan="2">FY 2011 OCO</th> <th>FY 2011 Total</th> <th colspan="3"></th> </tr> <tr> <th>Cost Category Item</th> <th>Contract Method & Type</th> <th>Performing Activity & Location</th> <th>Total Prior Years Cost</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Award Date</th> <th>Cost</th> <th>Cost To Complete</th> <th>Total Cost</th> <th>Target Value of Contract</th> </tr> <tr> <td>Various</td> <td>Various/ Various</td> <td>Various Various</td> <td align="right">1.518</td> <td align="right">0.544</td> <td>Feb 2010</td> <td align="right">0.626</td> <td>Feb 2011</td> <td align="right">0.000</td> <td></td> <td align="right">0.626</td> <td>Continuing</td> <td>Continuing</td> <td>Continuing</td> </tr> <tr> <td align="right" colspan="3">Subtotal</td> <td align="right">1.518</td> <td align="right">0.544</td> <td></td> <td align="right">0.626</td> <td></td> <td align="right">0.000</td> <td></td> <td align="right">0.626</td> <td></td> <td></td> <td></td> </tr> </table>																		FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total				Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	Various	Various/ Various	Various Various	1.518	0.544	Feb 2010	0.626	Feb 2011	0.000		0.626	Continuing	Continuing	Continuing	Subtotal			1.518	0.544		0.626		0.000		0.626			
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total																																																											
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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

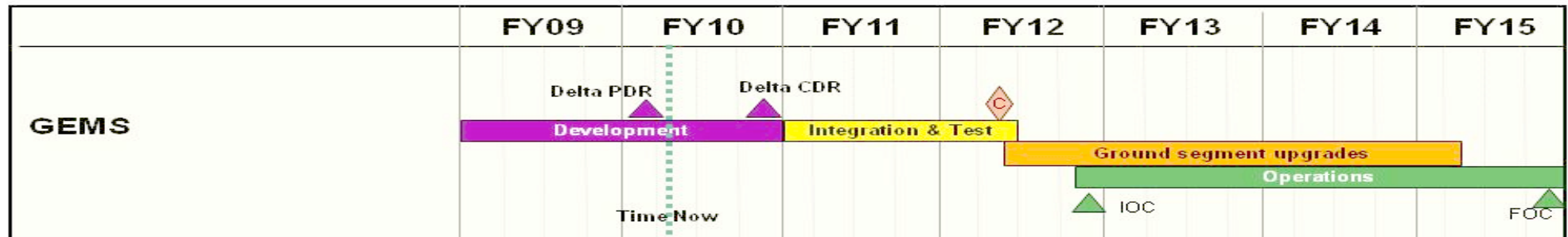
R-1 ITEM NOMENCLATURE

PE 0303131F: Minimum Essential Emergency
Communications Network (MEECN)

PROJECT

675047: Ground Element MEECN System
(GEMS)

GEMS



CDR: Critical Design Review
IOC: Initial Operational Capability

EHF: Extremely High Frequency
PDR: Preliminary Design Review

FOC: Full Operational Capability
VLF: Very Low Frequency

Concept activities
Production / fielding

Design / development
Operations / sustainment

Integration / test
Key events

UNCLASSIFIED

R-1 Line Item #175
Page 22 of 23

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force			DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0303131F: Minimum Essential Emergency Communications Network (MEECN)		PROJECT 675047: Ground Element MEECN System (GEMS)
Schedule Details				
	Start		End	
Event	Quarter	Year	Quarter	Year
SDD (started FY05; ends in FY10)	1	2009	4	2010
Delta PDR	1	2010	1	2010
Delta CDR	4	2010	4	2010
Integration and Test	1	2011	4	2011

UNCLASSIFIED

R-1 Line Item #175

Page 23 of 23